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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/616,037

07/10/2003

Hong-Seok Lee

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9800

27849 7590 01/11/2007

LEE & MORSE, P.C.

3141 FAIRVIEW PARK DRIVE

SUITE 500

FALLS CHURCH, VA 22042

EXAMINER

BODDIE, WILLIAM

ART UNIT

PAPER NUMBER

2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/616,037	Applicant(s) LEE ET AL.	
	Examiner William L. Boddie	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-8 and 10-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-8 and 10-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

1. In view of the Appeal Brief filed on 11/3/06, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

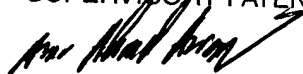
To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

AMR A. AWAD
SUPERVISORY PATENT EXAMINER



A. Awad.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 8 and 12-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Nally et al. (US 2004/0217932).

With respect to claim 1, Nally discloses, a liquid crystal display (LCD) (fig. 33), comprising:

an LCD panel having a plurality of color filters to selectively filter white light (fig. 1 ; paras. 6 and 11); and

a driver for driving the LCD panel (source and gate driver in fig. 33), wherein during display periods, the driver drives the LCD panel to display a desired color by mixing a combination of light output by the plurality of color filters (para. 6), and, wherein, during non-display periods between display periods (fixed data in fig. 7), the driver drives the LCD panel to display white light (white in fig. 7), wherein during non-display periods, the driver further drives the LCD panel to display no light (black in fig. 7) at different distinct time periods from when the LCD panel displays white light during non-display periods (para. 27, discusses the operation and advantages of this driving scheme; also note para. 14 which expressly states that such a driving scheme is applicable to color filter TFT display systems).

With respect to claim 8, Nally discloses, a method for driving a liquid crystal display (LCD) including an LCD panel (fig. 33) having a plurality of color filters to selectively filter white light (fig. 1, paras. 6 and 11), the method comprising:

driving the LCD panel during display periods to display a desired color by mixed a combination of light output from the plurality of color filters (para. 6);

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during non-display periods between the display periods (fixed data in fig. 7), driving the LCD panel to display white light (white in fig. 7); and

during non-display periods at different distinct timer period from displaying white light during the non-display periods, driving the LCD panel to display no light (black in fig. 7; para. 27, discusses the operation and advantages of this driving scheme; also note para. 14 which expressly states that such a driving scheme is applicable to color filter TFT display systems).

With respect to claims 12-13, Nally discloses, the LCD according to claims 1 and 8 (see above), wherein the LCD panel is driven to display no light during each non-display period between each of the display periods during which the desired color formed by mixing a combination of light output by the plurality of color filters is displayed (seems clear from fig. 7, that the black period is inserted prior to each color display).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-5, 7, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al. (US 5,117,224) in view of Someya et al. (US 5,396,257) and further in view of Iwauchi (US 5,843,492).

With respect to claim 3, Nally discloses, the LCD according to claim 1 (see above).

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Nally does not expressly disclose, wherein the plurality of color filters are transmissive color filters attached to an upper portion of the LCD panel.

Iwauchi discloses, a plurality of transmissive color filters (6 in fig. 1) attached to an upper portion of the LCD panel (8 in fig. 1, also note col. 13, lines 63-67 and col. 14, lines 1-12).

Nally and Iwauchi are analogous art because they are from the same field of endeavor namely, filter TFT LCD panels.

At the time of the invention it would have been obvious to one of ordinary skill in the art to construct the filters of Nally as shown by Iwauchi's upper portion transmissive color filters.

The motivation for doing so would have been to achieve a brighter multi-color display (Iwauchi; col. 3, lines 65-67).

Therefore it would have been obvious to combine Nally with Iwauchi for the benefit of a brighter multi-color display, to obtain the invention as specified in claim 3.

With respect to claim 4, Nally and Iwauchi disclose, the LCD according to claim 3 (see above).

Iwauchi further discloses, a reflecting plate (16 in fig. 2a, col. 7, lines 15-17).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include a reflecting plate, taught by Iwauchi, in the LCD panel disclosed by Nally.

The motivation for doing so would have been to lower power consumption by removing the need for a backlight to illuminate the panel.

Therefore it would have been obvious to combine Nally, and Iwauchi for the benefit of lower power usage to obtain the invention as specified in claim 4.

With respect to claim 5, Nally discloses, the LCD according to claim 1 (see above).

Nally does not expressly disclose, wherein the color filters are reflective and attached to the lower portion of the LCD panel.

Iwauchi discloses, reflective color filters attached to the lower portion of the LCD panel (21(a,b,c) in fig. 6, col. 14, lines 25-28)

At the time of the invention it would have been obvious to one of ordinary skill in the art to include reflective color filters as disclosed by Iwauchi, in the LCD panel of Nally.

The motivation for doing so would have been to remove the need for a reflecting plate in panel.

Therefore it would have been obvious to combine Nally and Iwauchi for the benefit of eliminating the need for a reflecting plate to obtain the invention as specified in claim 5.

With respect to claim 7, Nally and Iwauchi disclose, the LCD according to claim 5 (see above).

Iwauchi further discloses, wherein the plurality of color filters of the reflective color filter are made of dielectrics having different indices of refraction (While Iwauchi's embodiments use cyan, magenta, and yellow there is no reason one couldn't create the same filter using red, green, and blue. Col. 14, lines 36-45).

With respect to claim 10, as claim 10 is merely a method statement of the above limitations of claim 3, claim 10 is rejected on the same merits as shown above.

With respect to claim 11, as claim 11 is merely a method statement of the above limitations of claim 5, claim 11 is rejected on the same merits as shown above.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nally et al. (US 2004/0217932) in view of Iwauchi (US 5,841,492) and further in view of Alvarez (US 5,131,736).

With respect to claim 6, Nally and Iwauchi disclose, the LCD according to claim 5 (see above).

Neither Nally nor Iwauchi expressly disclose wherein the plurality of color filters are made of photonic crystals, which are alternate arrays of dielectrics.

Alvarez discloses, a filter constructed of alternate arrays of dielectrics (col. 3, lines 27-45).

Nally, Iwauchi, and Alvarez are all analogous art because they are directed to a similar problem solving area, namely filtering white light efficiently.

At the time of the invention it would have been obvious to one of ordinary skill in the art to use the dielectric array of Alvarez in place of the dielectric mirror of Iwauchi.

The motivation for doing so would have been for the higher efficiency of the dielectric array (Alvarez, col. 1, lines 21-25).

Therefore it would have been obvious to combine Nally and Iwauchi with Alvarez for the benefit of better filter efficiency to obtain the invention as specified in claim 6.

Conclusion

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William L. Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wlb
1/4/07

AMR A. AWAD
SUPERVISORY PATENT EXAMINER
